

Details about a user include –

- UserID (unique, not null)
- EmailID (unique, not null)
- Name (at least 3 characters and at most 50 characters)
- Password (at least 8 characters, at most 25 characters)
- DOB
- Address – FlatNo, Street, City, State
- PhoneNo (multivalued, exactly 10 digits)
- PreferredGenre (derived based on the most frequently read genre of user)

Details about a tier -

- TierID (unique, not null, range [1,3])
- TierName
- TierPrice

Details about item-

- ItemID (unique, not null)
- ItemName
- ItemPrice
- Category
- Brand
- Description
- Stock

Details about book-

- ISBN (unique, not null)
- BookName
- Author
- Genre

User has to belong to 1 and only 1 tier.

A tier can have multiple users or no users.

A user can register only one account with one email ID (unique).

A user can choose only one of the 3 tiers of membership.

A user can buy multiple items and a particular item can be bought by multiple users.

A user can have multiple items in the cart and a particular item can be in multiple users' cart.

The database also contains information about the quantity of a particular item that a user bought or has put in the cart.

The date on which a user buys an item is also stored in the DB.

Stock cannot be less than zero.

A user can read multiple books belonging to tiers less than or equal to his tier.

A book can be read by multiple users belonging to tiers greater than or equal to the tier of the book.

A tier can have multiple books belonging to that tier.

The book tier refers to the lowest tier members that can read it.

The user can only buy an item if the stock is non-zero.

Functional dependencies

User relation

UserID \rightarrow {UserID, EmailID, Password, Name, DOB, FlatNo, Street, City, State, TierID, PreferredGenre}

EmailID \rightarrow {UserID, EmailID, Password, Name, DOB, FlatNo, Street, City, State, TierID, PreferredGenre}

Item relation

ItemID \rightarrow {ItemID, ItemName, ItemPrice, Stock, Brand, Description, Category}

Book relation

ISBN \rightarrow {ISBN, BookName, Author, Genre}

Tier relation

TierID \rightarrow {TierID, TierPrice, TierName}

Bought relation

UserID, ItemID \rightarrow {BoughtQty, Date, Amount}

Cart relation

UserID, ItemID \rightarrow {NeededQty}